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# USSR Report

CONSTRUCTION AND RELATED INDUSTRIES

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26 June 1985

# USSR REPORT

## CONSTRUCTION AND RELATED INDUSTRIES

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## CONSTRUCTION PLANNING AND ECONOMICS

### COUNCIL OF MINISTERS ISSUES DECREE ON CONSTRUCTION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 27 Feb 85 p 2

[Decree: "Further Improvement in Planning Estimates and a Rise in the Role of Expertise and Authorial Supervision in Construction"]

[Text] On 28 January the USSR Council of Ministers adopted a decree "On Further Improvement in Planning Estimates and a Rise in the Role of Expertise and Authorial Supervision in Construction."

The ministries and departments of the USSR, the councils of ministers of the union republics, planning, research, scientific-research, design and technological organizations have been obliged to implement measures for a radical improvement in the quality of planning, broad use in the plans of advanced technology, equipment, materials and designs and advanced methods of organizing production, labor and administration ensuring that by the time projects are introduced they will correspond to the newest achievements of science and technology.

It has been established that the basic criteria for evaluating the activity of planning and research organizations and motivating their personnel are ensuring a high technical-economic level of the projects planned, increasing labor productivity and cutting down expenditure of material resources in their construction and operation, reducing the proportion of construction and installation work and the cost of the projects and improving the quality of urban development and architectural-planning approaches.

It has been determined that in the materials substantiating the need and expedience of constructing projects and in plans and expert conclusions, data should be introduced on the accordance of the adopted techniques, equipment, construction resolutions and production and labor organization to the newest achievements of domestic and foreign science and technology and advanced specific indicators.

With a view to this, the ministries and departments of the USSR, the councils of ministers of the union republics and the scientific-research and planning organizations should ensure the following:



In the sphere of technological planning there should be wide-scale use of highly efficient production processes, low-outlay and resource-saving technology, comprehensive mechanization, automated lines, industrial robots, flexible automated systems and other advanced equipment, as well as a higher work shift coefficient and growth of labor productivity.

In the sphere of construction planning there should be a reduction in material-intensiveness, labor-intensiveness and the cost of the construction, shortening the length of time required, through high technological quality of the structural approaches to buildings and installations, introducing advanced items and materials, consolidating the assembly units, structures with high plant readiness and advanced methods of organizing construction.

It has been established that in drawing up the plans there must be ensurance of a high level of architectural and urban developmental approaches, provision for an improvement in the labor and living conditions of the workers, taking into consideration the latest achievements of industrial esthetics; consideration must also be taken of the need to improve the planning and raise the quality of residences and social and every-day living projects, as well as creating better conditions for mass cultural work.

Using industrial processes in the plans which do not comply with the newest achievements of science and technology has been prohibited. The ministries and departments have been given a directive to ensure strict control over adherence to this requirement.

The ministries and departments of the USSR and the councils of ministers of the union republics have been commissioned to the following:

To confirm, within the framework of the five-year plans, the enumeration of the projects which are subject to planning in the next and successive five-year plans and in which they will use new industrial processes, as well as machines and equipment with long-term developmental cycle, designs and manufacture;

To develop and confirm, in conjunction with the machine-building ministries, comprehensive planigraphics of the carrying out of the indicated projects, of scientific-research, design and planning work, bearing in mind the fact that the development of the projects to construct these objects should be implemented on the basis of the approved technical plans for machines and equipment.

With a view to improving the existing norms and regulations linked with the planning and construction of projects, it has been commissioned to review and affirm in 1985 the following:

For the ministries and departments of the USSR and councils of ministers of the union republics, by agreement with USSR Gosstroy and the USSR State Committee for science and technology--All-Union and departmental norms on technological planning;

For USSR Gosstroy--normative documents on construction planning and labor production;

For the state supervisory organs, by agreement with USSR Gosstroy--norms and rules in which, along with improving work production conditions and raising labor safety practices, it is specified that there be elimination of any type of excesses, a careful attitude toward land resources and the fullest utilization of volumes and sites of buildings, with a view to reducing, on this basis, expenditures for construction and operation of projects.

It has been established that approaches to planning construction of projects be adopted as follows:

For large and complex enterprises and structures (and, if necessary, for other objects as well) determined by USSR Gosplan and USSR Gosstroy--on the basis of technical-economic substantiations for the construction;

For other enterprises, buildings and structures--on the basis of technical-economic estimates substantiating the national need and economic expediency of their construction;

For the most important national economic projects--on the basis of decisions of the government.

In technical-economic substantiations and technical-economic estimates, the following procedure is determined for developing planning estimates: in two stages--the plan and the work documentation, or in one stage--the manufacturing plan.

Development of technical-economic substantiations and technical-economic estimates for construction of projects is implemented by virtue of capital investments for the corresponding sector, and for construction of the most important national economic projects--by virtue of budgetary allocations.

The ministries and departments must ensure a further rise in the role of plans to improve the organization of construction and the development of cost accounting. With a view to this it is outlined to:

Establish in the planning estimates the normative labor-intensiveness of the project construction;

Specify in the plans for large enterprises and structures singling out underway complexes (including the necessary housing and objects for social-everyday purposes) determining for them the limits of capital investments and construction and installation work and the demands for equipment, materials and labor resources;

Ensure, when working out the plans for organizing construction (which should be obligatory for all those participating in it), singling out the industrial centers and work stages, determining the sequence of performing the preparatory

and basic work on construction of buildings and structures, calendar deadlines for construction and putting in equipment and other structures, and demands for materials, labor resources and means of mechanization;

Specify, in the work plans for individual buildings and structures, schedules for performing the work, decisions for use of brigade contracting and also measures to implement quality control for the construction.

Participation of the planning organizations of the ministries and departments carrying out the construction in developing the indicated plans has been acknowledged to be obligatory.

The directors of the main territorial administrations for construction and construction-installation trusts have been made personally responsible for prompt development and provision of work plans for the buildings. The work plans for large and complex projects are authorized for development by means of resources for planning-research work.

The ministries of the USSR--contractors, and councils of ministers of the union republics have been authorized to form, when necessary, within the framework of the main territorial administrations for construction, the republic construction ministries and large construction-installation trusts, subdivisions to review planning estimates subject to agreement, and to draw up proposals on improving construction decisions and organizing construction on the basis of specific conditions. It has been determined that the above subdivisions be formed within the limits established for the ministries of the total number of workers and the wage fund.

USSR Gosstroy, the ministries and departments, the State Committee for Civil Construction and Architecture at USSR Gosstroy and the gosstroys of the union republics have been commissioned with the following:

To review, in 1985, the list of existing standard plans and the catalogs of standard construction structures and items, eliminating from them the plans, structures and items which do not answer to modern achievements of science and technology;

To ensure the development of economical zonal standard plans for construction of objects for urban and rural housing, taking into consideration the local conditions;

To develop standard plans, as a rule on a competitive basis, and to confirm them under the established procedure after expert opinions and review by a scientific-technical council or collegium of the ministry and department.

The USSR ministries and departments and the councils of ministers of the union republics are authorized to carry out, beginning from 1986, through funds of the state budget, for plans confirmed by USSR Gosstroy, the following:



Development of zonal standard plans for the construction of projects for civil housing and rural purposes, as well as of sectorial standard plans for the construction of fundamental and ancillary projects for production purposes;

Compilation of departmental and republic price lists and consolidated estimate normatives for construction;

Development of sectorial program devices for computer techniques, systems of automated planning and systems for data processing;

Work connected with fulfilling the functions of leading research organizations.

With a view to increasing the motivation of planning and research organizations to carry out planning-research work on renovation and technical reequipment of existing enterprises, the ministries and departments have been authorized to establish a markup amounting to up to 50 percent of the cost of this work and, accordingly, to increase the withholdings for the economic incentive funds and the amounts of the bonuses for the workers of the above organizations.

The USSR ministries and departments and councils of ministers of the union republics have been charged with ensuring priority singling out of enterprises for which there are specified renovation or technical reequipment, limits for planning-research work and also inclusion of the said work in the plans for the planning organizations.

It has been acknowledged necessary to raise the role of chief engineers and chief architects of the plans, who should bear the responsibility for the technical-economic level and architectural treatment of the enterprises, buildings and structures being built, for the quality of the plans and correct determination of the estimated cost, as well as for the enterprises' achieving the planning indicators in the established period.

It has been established that the chief engineer (chief architect) of the plan ensures the formation of the staff of workers for the plan, their mutual determination of the assignments for the sections and parts of the plan and the work volumes with the corresponding wage fund, monitors the technical and economic level of the planning decisions adopted and the developmental periods for the planning estimates.

The planning organizations have been granted the right to leave, at their disposition, reserves amounting to 5 percent of the yearly volume of the reserves, for specific projects, which can be used by decision of the chief engineer (chief architect) of the plan in the course of the year.

It has been determined that the chief engineer (chief architect) of the plan is designated from among the most highly qualified specialists on large and complex projects by the ministries and departments, and for other projects--by the directors of the planning organizations.

The directors of the organizations--general designers--have been authorized to introduce into the staff, when necessary in planning very important projects, the position of deputy chief engineer of the plan.

The ministries and departments have been granted the right, when adopting decisions on planning and construction of a project, to appoint, when necessary, directors of future enterprises (production facilities) as parties carrying out supervision of the solution to technical problems in the projects being planned.

The ministries and departments have been charged with ensuring a further improvement in the system of material incentive for the designers, with the aim of intensifying its effect on raising the interest of the working collectives of planning and research organizations in improving the results of their work, on the basis of established basic criteria for evaluating the work of these organizations.

It has been established that payment of bonuses for the workers of planning and research organizations should first of all be made for achievement of a high technical-economic level of plans being developed and for reduction of the estimated construction cost.

Provision has been made to make, beginning from 1986, supplementary withholdings for the material incentive fund of planning and research organizations, along with the existing procedure for its formation through:

Funds for compilation of technical-economical substantiations (calculations) and plans for construction of projects amounting to up to 15 percent of the cost of their development. The specific amount of withholdings from the above funds is determined by the client depending on the quality and economic effectiveness of the planning decisions made;

The saving, as compared with the estimated cost of the project construction in the confirmed plan, achieved in working out the work documentation. The client deducts, for the indicated purposes, up to 20 percent of the saving obtained.

With a view to increasing the interest of the planning and research organizations in fulfilling the work volume established for them, with the least number of workers (in the work fund, calculated according to the stable, normative for the five-year plan), the directors of these organizations have been granted the right by agreement with the trade union committees:

To establish, by virtue of the saving in the wage fund, for the directors and engineering-technical personnel (including the chief engineers and chief architects of the plans) engaged in planning and research work, increases to the wages amounting to up to 50 percent for fulfillment of the most complex and responsible work, in consideration of the personal contribution of the workers and other engineering and technical personnel, specialists and office workers--up to 30 percent of the salary for high qualifications. It has been determined that for the directors of planning and research organizations the wage increases may be established by decision of the higher organizations;

To carry out, without agreement with higher organizations, supplementary payment for combining occupations (positions) by workers related to different personnel categories, through saving of the wage fund. These increases and supplementary payments are diminished or rescinded fully with a worsening of the work indicators;

To establish, within the limits of the wage fund for engineering and technical personnel, salaries for this personnel without compulsory adherence to the average salaries according to the salary systems and correlations in the number of individual categories of personnel;

To introduce, for personnel of production subdivisions, collective (brigade) forms of organizing work and its wages according to the end results of the work.

The ministries and departments are charged with ensuring correct determination of the estimated construction cost and strict adherence to it in the process of drawing up the planning documentation, planning and construction-installation work. With a view to this, personal responsibility has been established as follows:

For the appropriate personnel of the planning organizations--for correct determination of the estimated construction cost, structure of underway complexes and sequences of work fulfillment. When there is an increase in the estimated construction cost through the fault of the planning organizations, it is specified to cut off, fully or partially, the bonuses of the chief engineers (chief architects) of the plans, the directors of these organizations and other guilty parties;

For the directing personnel of the ministries, departments, enterprises and organizations--for adherence to the normative deadlines for the duration of the project construction when planning capital investments, concluding contractual agreements and fulfilling the construction-installation work.

It is specified that, in the case of an increase in the confirmed estimated construction cost, the ministries and departments should examine these questions, including as well examination at collegium meetings, and adopt strict measures toward the guilty parties.

The USSR ministries and departments and the councils of ministers of the union republics should increase the responsibility of planning organizations for implementing authorial supervision of the construction of enterprises, buildings and structures. The planning organizations are granted the right to give directives, compulsory for the organizations of the client and contractor, on production phase-out of work fulfilled outside the requirements of the plan and the normative documents.

It has been established that out-of-town-job expenditures of planning organizations connected with implementation, authorial supervision of construction and inspecting projects subject to renovation and technical reequipment, and rendering technical assistance in project construction are not among limitable expenditures for out-of-town service trips.



With a view to raising the quality of expert opinion for the plans, the USSR Council of Ministers has obliged the ministries and departments of the USSR and councils of ministers of the union republics to:

Reinforce, with highly-skilled personnel, the expert subdivisions, having as a rule put them under the jurisdiction of the ministry and director of the department or of their chief deputies;

Examine the plan\* for large and complex structures at meetings of the collegiums, ministries and departments, and ensure strict monitoring of the quality of the plans confirmed by subdepartmental organizations;

Review systematically the results of the expert opinions and monitoring of the quality of the plans, as well as take measures to eliminate the shortcomings revealed.

USSR Gosstroy, USSR Gosplan, the USSR ministries and departments and the councils of ministers of the union republics are charged with ensuring, when carrying out expert opinion of the technical-economic substantiations and plans (manufacturing plans), monitoring of the comprehensive solution to problems of constructing projects for production purposes, residential buildings and objects for social-everyday purposes and environmental preservation.

USSR Gosstroy and the ministries and departments are obliged to develop and confirm, in 1986, under the established procedure, the prices for planning work for construction on the basis of the fundamental indicators of the projects planned (power, duration, capacity, area, etc.), excluding the relationship of prices to the cost of the construction-installation work, and taking into consideration expenditures to develop modifications of the plans, mock-up planning, and the need to work out more thoroughly the technicological, volume-planning, structural and architectural approaches. The economically substantiated profitability level should be specified at these prices.

The ministries and departments are charged with:

Developing and confirming, beginning from 1986, continuous two-year thematic plans for planning and research work;

Leaving, when bringing the plan assignments to the subdepartmental planning organizations, reserves amounting to up to 5 percent of the work volume, the wage fund and the economic incentive fund, with the right to use it during the entire planning period.

It has been established that the input to develop planning estimates, not used in construction in the plan period, be made up for in the union budget for new construction through the reserve of the ministries and departments to render financial aid (for structures of the ispolkoms of the local soviet of people's deputies—through the amounts of income increase above the expenditures, according to the budgets) and for construction at existing enterprises—through the results of their economic activity.



The ministries and departments have been given a directive to concentrate, at specialized planning organizations, development of the appropriate plan sections for large and complex projects.

The Central Scientific-Research and Planning Institute of Metal Construction Structures imeni N.P. Mel'nikov of USSR Gosstroy, as the leading planning organization, has been entrusted with the responsibility for carrying out a unified technical policy in planning construction steel structures.

USSR Gosplan, USSR Gosstroy and the USSR ministries and departments should implement, in the 12th Five-Year Plan, measures to expand the participation of the planning organizations of the contracting ministries in developing the general construction part of the plans for projects for production purposes, being constructed by these ministries, after ensuring full load of these organizations.

The ministries and departments of the USSR, the councils of ministers of the union republics and USSR Gosstroy must broaden the use of advanced methods and means of automation when fulfilling planning work. USSR Gosstroy has been given a directive to develop and confirm, beginning from 1986, five-year and yearly plans to develop and use in the planning of intersectorial programming means for computer equipment, systems for automated planning and data processing systems, and for the ministries and departments of the USSR and the councils of ministers of the union republics, to develop and confirm, in accordance with USSR Gosstroy, plans for the above work for sectorial (departmental) purposes.

The decree also determined other measures, directed toward a further improvement in planning estimate matters.

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## CONSTRUCTION PLANNING AND ECONOMICS

### INCREASED ROLE OF ATTORNEYS IN CONTRACT PLANNING NOTED

Moscow KHOZYAYSTVO I PRAVO in Russian No 9, Sep 84 pp 51-52

[Article by L. Grigor'yev, chief legal consultant of Glavdal'stroy, USSR Ministry of Construction in the Far East and Transbaykal Regions: "The Main Element Is the Construction Trust"]

[Text] Continuing the discussion of the topic raised by the journal\*, let us look back about 10-15 years. At that time there were not yet lawyers at every construction trust. Today you seldom find a construction enterprise of such a size that it does not have a legal service. In addition there is a different understanding of its role among economic managers. Whereas formerly lawyers were remembered only when some kind of difficult situation arose, now they try to keep them working on an everyday basis and demand that a system of legal measures be formulated to insure this. It is rare today for anyone to count on the oratorical skill of a representative of one of the parties to a proceeding in the review of an arbitration case. Today people understand that a correct resolution of the case depends above all on the level of legal organizational and contract work.

In the Glavdal'stroy [Main Administration for Construction of Enterprises in Regions of the Far East] system, for example, numerous legal organizational orders and instructions have been issued in the last two years. Instructions on services and divisions have been developed. Local normative acts on deliveries within the main administration, mutual relations of construction enterprises and mechanization administrations, procedures for concluding and carrying out contracts and subcontracts, and amplification of the role of property sanctions in economic activity have been formulated on the basis of standard models. The most recent document gave detailed regulations for procedures in concluding contracts and their further use.

The switch to work according to these documents demonstrated, in the first place, that there were fewer pre-contract disputes in state and departmental arbitration because many questions, including special conditions, were standardized. In the second place, the results of activity related to claims and suits improved.

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\* Response to the article "The Lawyer at the Construction Site," published in No 7 of the journal for 1983.

Because the effectiveness of legal work is largely evaluated by the results of claims and suits, it would appear that we should talk about this in more detail.

It is common knowledge that one of the reasons for delay in launching projects is untimely delivery of equipment by the clients. This factor is so serious that it may be grounds for not launching the project. But in practice such claims are unusual. Why is this? An analysis made at Glavdal'sstroy showed that general contractors do not as a rule keep precise records of compliance with schedules for delivery of equipment to warehouses at the projects. They mention as excuses the lack of needed specialists and the complexity of this work.

In connection with this situation, during the contracting season of 1983 in our main administration it was recommended to general contractors that they add one point to the special contract conditions: within three days after delivery of the equipment the client must send the contractors a copy of the transfer document, and the penalty for delay in sending it is 100 rubles a day. One cannot get by without a schedule in this matter, and it will show immediately who is right and who is wrong. And some Glavdal'sstroy general contractors have already begun the struggle against this kind of breach of obligations by the clients.

How have we organized our legal service?

Because all construction trusts have been switched to the new system of planning and economic stimulation, internal subdivisions of a trust do not have the rights of socialist state production enterprises. Thus, they also do not have independent legal services either.

But a certain amount of legal work is done at this level. For example, contracts are concluded on commission for the trust. At the construction administrations and UPTKs [administrations of supply of production-technological equipment] engineers, estimate workers, and bookkeepers are engaged in this work. So it appears that it would not be advisable to introduce the position of claims specialist in every subdivision.

It seems better to have a legal group consisting of two people that can serve all the subdivisions. This form of mutual relations with the subdivisions is already in use at the Amurstroy Trust. But it has not been legally formalized, that is, it is not envisioned by an appropriate legal document. It would appear that this question should be decided at the level of the sectorial ministry.

There are no norms whatsoever for relating the pay of lawyers to their volume of work. For example, it is impossible today to introduce the position of senior legal consultant at first-group trusts because, once again, there is no document that obligates this. We should note that decree No 4/2-28 of the USSR State Committee for Labor and Social Questions and the Secretariat of the AUCCTU, dated 14 January 1983 and authorizing supplements of up to 30 percent of the position salary of highly qualified personnel, including enterprise lawyers, who have transferred to new forms of economic activity, had a beneficial impact on keeping them in the economy. The other questions mentioned here also need this kind of legal reinforcement.

There is one last point. I have not met a legal consultant whose preparation for work in our sector began right at school. Although capital construction is one of the most complex sectors of the national economy, they usually master its specific features on the job. Isn't it time to introduce such a specialization, at least on an elective basis, at our legal higher educational institutions?

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## INDUSTRIAL CONSTRUCTION

### BRIEFS

**TIRE PRODUCTION FOR OVERSIZE DUMP TRUCKS**--Bobruysk tire workers have begun to manufacture "shoes" for Herculean dump trucks with a load capacity of 75, 110, and 180 tons which are turned out by the Belorussian Motor Vehicle Plant in Zhodinye. The first industrial plant complex for super large size tires has been put into operation. The weight of each reaches two tons and the diameter is three and one half meters. Despite the fact that such a type of enterprise is being built for the first time in our country the Bobruysk Trust No. 13 in the BSSR Ministry of Industrial Construction together with their numerous subcontractors are successfully fulfilling their complex assignment. Eleven of the 13 lines for fabricating the gigantic automotive tires have already been installed. The Bobruysk Tire Production Association has now become the largest enterprise in the sector. [Bobruysk] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 20 Feb 85 p 3] 9495

**NEW PRODUCTION OF AGRICULTURAL TRAILERS**--The new Mogilev Agricultural Machinery Plant has begun serial production of large-load trailer units for transporting pulverized hay and silage substances. The projected capacity of the first phase which came on line is 5,000 machines. This technology is intended to operate in conjunction with the Gomel' "KSK-100" combine. When the entire plant is put into operation it will produce 25,000 such machines and the same amount of trailer fertilizer spreaders with various load capacities. [Mogilev] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 20 Feb 85 p 3] 9495

**NEW HOUSING-CONSTRUCTION PANEL PLANT**--The Brest Housing Construction Combine has expanded noticeably. A new large-panel housing construction plant became a member of it. The enterprise is expected to turn out 120,000 square meters of housing per year. The entire operation has been mechanized and automated here. [BREST] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 20 Feb 85 p 3] 9495

**MOST IMPORTANT 1985 PROJECTS**--Our paper has now over the course of a long period of time followed the state of affairs at the largest construction sites in the republic. KAZAKHSTANSKAYA PRAVDA regularly publishes materials by our own correspondents and others not on our staff, by party, soviet and economic leaders who are indirect participants of the work at the construction sites under the heading "Starting Projects under Control of KAZAKHSTANSKAYA PRAVDA" in which advanced expertise is discussed, deficiencies are uncovered and concrete recommendations are given for accelerating the pace of capital

26 June 1985

construction. The editorial board published 98 such materials last year alone. A whole series of important national-economic projects are planned for the current year, which completes the 11th Five-Year Plan, and by established tradition continuous control will be established over them. Among them are: Mine No 67 in the Dzhezkazgan Mining and Metallurgical Combine, the Zhayram Mining Enrichment Combine, the second phase of a tin plate shop at the Karaganda Metallurgical Combine, the Zhezkent Mining Enrichment Combine capacities, a liquid vat smelting shop at the Balkhash Mining and Metallurgical Combine, the Tselinograd Agricultural Machinery Production Association's capacities, the Chilisay phosphorite mine, the Zhetybay rock shell structural components open pit, the Alma-Ata Sovkhoz Heating Combine, the Tyul'kubas Bakery Products Combine, the Tselinograd Spinning and Thread Factory, the Kustanay Diesel Engine Plant, the "East" cut at the Ekibastuz Coal Production Association, the Mankent Machine Building Plant for Animal Husbandry and the Kiyalin Mixed Feed Plant. The editorial board of KAZAKHSTANSKAYA PRAVDA addresses workers and foremen, and engineering and technical workers who are engaged in construction work, correspondents who are not on our staff and all our readers of our paper with the appeal to take the most active part in discussing the pace at which the above-mentioned and other starting projects are being built. We await your letters and reports, comrades! [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 15 Jan 85 p 1] 9495

MOSCOW DEVELOPMENT PLAN RESULTS--Reconstruction, expansion and technical retooling of operating enterprises has been accomplished on an extensive scale. Production capacities have been put into operation at the "Mosbytkhim" and "Voskhod" production associations, combines for paper products, the "Hokkey" Hockey Equipment and Experimental Sports Supplies, and for pipe equipment for welding, insulating and completing pipelines, the "Serp i molot," First Moscow Clock, a gelatin and a pipe plant, the "Parizhskaya kommuna," and an experimental musical instruments factory, TETs No. 26 and others. Capital investments in the urban economy amounted to 3.7 billion rubles based on all sources of financing. In all 554.9 million rubles were allocated for the technical retooling and reconstruction of industrial enterprises. The amount of incomplete construction as a ratio of the annual amount of capital investments has been reduced somewhat. Construction organizations in the city completed 101.6 percent of the established amount of contract work for their own forces, and 101.8 percent of the plan for labor productivity. Contract work worth 66 million rubles was completed for state agricultural and kolkhoz enterprises and organizations. [Excerpt] [Moscow MOSKOVSKAYA PRAVDA in Russian 2 Feb 85 pp 1-2] 9495

WORKER DOUBLES PLANNED GOAL--These days Yevdokiya Grigor'yevna Korobkova, an esteemed RSFSR builder, delegate to the 26th Party Congress and presser at a silicate building materials combine in the Volgograd Building Materials Association is working on the plan for the second half of 1990. She promised to complete two personal five-year plan assignments by the 40th Anniversary of the Great Victory and is keeping her word--the distinguished presser has formed 13.5 million units of brick during the current year, double the plan. Many production enterprises are trying to master the advanced methods of

Ye. Korobkova's work. [By L. Kuznetsov] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 23 Feb 85 p 2] 9495

PENTAERYTHRITOL PRODUCTION COMPLEX IN OPERATION--"Excellent"--such was the evaluation that the state commission gave the complex for producing pentaerythritol at the Cherkessk Chemical Association that they accepted for use. The starting complex includes more than 30 different structures that are furnished with modern equipment, a substantial portion of which is not duplicated anywhere. The product that is turned out here is a valuable raw material for the paint and varnish industry. It is possible to substitute it for 60,000 tons of vegetable oil per year. While accepting a symbolic key from the construction workers from the Karachayevsk and Cherkessk Industrial Construction Trust, the installation workers from the Stavropol' Technical Installation Trust and other participants in the construction, the operating personnel promised to gear up the new complicated production ahead of schedule. [By M. Martynov in Cherkessk] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 3 Feb 85 p 1] 9495

SECOND PHASE OF POULTRY PLANT--The second phase of a powerful poultry plant has become operational at Adler. The new complex is expected to hold 125,000 laying hens per year. Along with five poultry houses an auxiliary facilities unit, an administrative and service building, a material and technology warehouse, a sanitation center, a slaughterhouse, an egg storehouse and a heating network have been turned over for use. The construction and installation work that was completed for the second phase amounted to 2.5 million rubles. In all the collectives in the subdivisions of the Main Sochi Special Construction Trust No. 1 have utilized 10.5 million rubles since the start of construction on the Adler Poultry Plant. The breeding capacity of the complex has risen to 250,000 laying hens per year since the second phase was put into operation. [By G. Khmyrov in Krasnodar Kray] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 3 Feb 85 p 1] 9495

YUZHNY PORT IN OPERATION--The collective of the Black Sea Hydraulic Construction Trust have put the first phase of a coal and iron-ore transferring complex into operation at the port of Yuzhnyy near Odessa. It is equipped with powerful handling means and the depth of the body of water makes it possible for large ships to come up to the hawsers. The complex is capable of taking in 1.3 million tons of cargo per year. It is expected that the second phase of the port for handling chemicals will be put into operation by the end of next year here. A village for construction and dock workers is growing at the same time as the development of the new harbor that is the largest on the Black Sea. New residents received more than 5,000 square meters of housing floor space during the past year alone. [By G. Dolzhenko in Odessa] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 3 Feb 85 p 1] 9495

CSO: 1821/125

## HOUSING CONSTRUCTION

UDC 316.334

### SUPPLY, DEMAND QUESTION OF RURAL HOUSING ADDRESSED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 1, Jan 85 pp 28-32

[Article by V. Tarasevich, candidate of economic sciences, sector chief, and V. Leshkevich, candidate of economic sciences, senior scientific associate at BelNIIEOSKh: "Problems of Single Unit Rural Housing Construction"]

[Text] An integrated solution to the fundamental problems of developing Soviet rural settlements is designed to perform economic, production, technical and social tasks. In this connection, it becomes important to eliminate the differences which exist between the city and the rural settlement. Much has been done to overcome these differences, including improving the production forces and production attitudes, the development of a social infrastructure and culture, and improving the way of life of the rural population.

In the system of measures designed to improve the social welfare conditions of rural life, particular emphasis has been placed on housing construction. And this is proper, considering that the level of comfort predetermines the mode of living and the degree to which people take part in public activities. Friedrich Engels had this to say about the role of housing in a person's life: "The manner by which the need for housing is met can serve as the measure of how all the rest of the workers' needs are met." (Marx, Karl, Engels, Friedrich, Collected Works, 2nd Edition, Volume 2; page 302).

We note that housing has a more pronounced influence on the way of life in the country than in the city, where urban dwellers can take advantage of the services of constantly-operating specialized institutions. In the country, housework is almost always done by the members of the family. For example, rural dwellers in Belorussia use laundries one-eighth as much, dry-cleaners one-seventh as much, and repair shops for domestic appliances one-third as much as city dwellers. Over 120 sovkhoses and some 1000 kolkhoses have no canteens.

The republic's housing problem is still far from being solved. Particular proof of this is the fact that about 5000 agricultural specialists are living in private apartments, and over 8000 machine operators' families are in dire need of improved housing. There were, at the start of 1984, over 30,000 persons registered to obtain better housing.



One of the most important conditions for hastening a solution to the housing solution is the development of construction of single-unit and cooperative housing.

The practice of Belorussian kolkhozes and sovkhozes has shown that as single-unit home construction is extended, a lot of state or kolkhoz assets are liberated which would otherwise be expended for upkeep and routine and major repairs to the state (kolkhoz) housing. Moreover, single-unit housing utilizes simplified engineering utilities (individual apartment heating, hot water supply and local waste water disposal), thereby considerably reducing the total of capital investments needed to install centralized systems when constructing engineering service line headworks (water supply connection points, water purification works, gas distribution stations etc.). At the relatively slow rates at which a rural settlement is developed with apartment houses, the outlays for their engineering utilities (calculated per 1 m<sup>2</sup> of total area) increase quite a bit, since the headworks for the engineering utilities will not be serving all the settlement's residential complexes, but only the individual buildings built in accordance with an accepted sequence.

Individual residential development in a village is profitable in an economic as well as a social sense. No other object of personal property is used as long as one's home. Consequently, the house as a means of realizing one's right to personal property will give the owners a sense of attachment to the rural locale. There are plans in the republic calling for an expanded program of constructing single-unit residences with outbuildings. Specific measures have been determined to develop single-unit housing construction.

There were plans during the 11th Five-Year Plan period to build 6.8 million m<sup>2</sup> of housing in the republic's rural areas, including over 2 million m<sup>2</sup> for kolkhoz workers, workers, office workers and rural intelligentsia (see F. P. Sen'ko: "Gorizonty belorusskogo sela" [Belorussian Village Horizons], Minsk, 1983, p 130). Areas to be occupied by single unit houses with outbuildings are to be assigned in all rural population points, including small ones. Model blocks of single-unit housing have been built for official acceptance of the designs developed for the specific natural and economic conditions in each region.

The determination of the prospects for the continued development of single-unit housing construction assumes special significance, since a tendency toward reducing the volumes of this type of construction has been noted in the last few years. If, during the 9th Five-Year Plan, the average yearly housing built for rural inhabitants amounted to 954,000 m<sup>2</sup> of total area, that built during the 10th Five-Year Plan period came to only 483,000 m<sup>2</sup>. For the years 1981-1982, with the assignment to make 882,500 m<sup>2</sup> of single-unit housing available, only 564,000 m<sup>2</sup>, or 64 percent of the assigned amount, was actually built.

As research and practice have shown, there are many factors effecting the development of single-unit housing construction. With the improvements in the population's material well-being, their housing needs have changed: people want to build spacious homes with convenient floorplans, roofed with slate and

steel plate and with all the municipal conveniences laid on. This sort of construction is in progress. However, the rates for single-unit housing construction have slowed.

Among the factors hindering single-unit housing construction, there are the well-known problems of difficulty in acquiring the necessary construction materials, complications in the search for a contractor, and shortages of good type designs for residential construction.

An investigation conducted by the BelNIIEOSKh Sociology Department has made it possible to study the status of single-unit rural housing construction, and to discern its tendencies for continued development in 15 of the republic's rayons, in each of which were chosen 7 village soviets. This investigation also made it possible to study the kolkhozes and sovkhoses in suburban areas, as well as studying the remote areas occupying intermediate locations in relation to the rayon centers. The following were the criteria for evaluating the economic conditions: the level of the economic development of these facilities; the relation between the number of inhabitants of the central and other rural population centers in each agricultural facility; the remoteness of the kolkhozes and sovkhoses from the rayon centers, and their supply of workers. Along with the agricultural enterprises, industrial enterprises which process agricultural produce, and which are located in rural areas, were included in the sampling. Fifty questionnaires were distributed within each village council.

An analysis of the data from the questionnaires showed that of the rural inhabitants which were questioned, there was a predominance of persons (76.6 percent), who had no plans to construct a single-unit dwelling within the next five years. A majority of them (64.6 percent) have their own homes, or live in a state-owned apartment. The rejection of single-unit construction has been brought about by the fact that people count on quickly obtaining state or kolkhoz quarters. The greatest portion of the population who have no plans to construct their own homes belong to the intelligentsia, office workers, employees of industrial enterprises and machine operators.

Some rural inhabitants, especially young people who have just recently begun working at their occupations, do not have the necessary assets to build a house, and others want to purchase a prefabricated house put up by a kolkhoz or a sovkhos. Among those wishing to purchase a prefabricated house, 46.6 percent are field crop growers, 20 percent are machine operators, 10 percent are livestock breeders, 16.7 percent are agriculture specialists, and 30 percent of all of them are young people.

Some rural residents (18 percent of those questioned) expressed a desire to build a dwelling on a cooperative basis. The majority of them consider the development of house-building cooperatives the most convenient alternative solution to the housing problem. However, there are no such cooperatives on the territory of many of the rural councils.

The establishment of housing cooperatives in rural locales will resolve a number of problems of major social significance, in particular, it will bring large sums of money--the rural inhabitants' savings--into circulation.

Rural cooperative housing construction has already been started in some of the republic's oblasts. Thus, in 1983 there were 15 cooperatives in operation in the Minsk Oblast, 11 in the Gomel Oblast and nine in the Grodno Oblast.

In the Novaya Zhizn' Kolkhoz, located in the Minsk Oblast's Nesvizhskiy Rayon, the cost for a cooperative-built single-family house comes to about R25,000 on the average, with 50 percent of this sum being reimbursed by the kolkhoz. The first payment of R3000 is made by the cooperative member. The remaining loan is paid off over a period of 20 years. The amount of the monthly payment is about the same as a typical rent payment, and for the first two years after moving in, the ZhSK (House-Building Cooperative) member pays nothing for his housing. Single-unit housing construction has also developed widely as the Novaya Zhizn' Kolkhoz.

The housing cooperative which was organized on the Pobeda Kolkhoz located in the Brest Oblast's Baranovichskiy Rayon is successfully building cottage-type housing on the kolkhoz's central farm in the village of Kroshin. Each house is a duplex of three- and four-room apartments with separate entrances. The total area for each apartment amounts to over 80 m<sup>2</sup>, with a 12 m<sup>2</sup> kitchen. The apartments have spacious, well-illuminated entrances, galleries, a bath and lavatory, corridors and built-in bookcases. These homes have central heating and running water. There are cellars where agricultural produce can be stored. A livestock shed has been built in the yard. The apartment is priced at R21,000. In accordance with the rural house-building cooperative's rules, the kolkhoz, using the assets from the fund for social and cultural measures and housing construction, reimburses half of this sum.

Many country dwellers have savings for house-building at their disposal. This, 51 percent of those questioned, and who intended to build single-unit houses, responded that they have sufficient savings, and 21.2 percent replied that they would be able to build a house with financial aid from their relatives. Somewhat less than one third of those wishing to start building intend to use credit. Over 25 percent of them were young people.

On the average for the oblast's 15 rayons, the majority of the rural inhabitants (57.9 percent) want wooden houses, and 34.6 percent expressed a desire for brick. Expanded slag concrete and block turned out to be less popular: only 4 and 3.5 percent of the inhabitants, respectively, wanted to build using these materials.

However, individual rayons came up with different results from those shown above. Thus, in the seven village councils of the Gomel Oblast's Rechitskiy Rayon, quite a few want brick houses (70 percent of those questioned). This has to do with the fact that it is simpler for the local inhabitants to acquire brick than lumber. A lot of experience in building brick homes has been accumulated here over a period of many years.

In the Mogilev Oblast's Chavinskiy Rayon and the Vitebsk Oblast's Lioznenskiy Rayon, wood is used as the basic construction material, and that is why the majority of the rural dwellers--65.7 and 74 percent, respectively--spoke up in favor of wooden houses. Many (21.8 percent) of those living in the Brest Oblast's Kachinskiy Rayon prefer building houses of block.



The results of questionnaire sampling of rural inhabitants regarding the plan dimensions of the houses being built are of interest. Over 50 percent of those questioned want a house with from 60 to 100 m<sup>2</sup>, and more, of living space. We note that the majority of previously-constructed houses had areas of from 40 to 50 m<sup>2</sup>, and that the rural family was quite large. Apparently, people now have the desire and the opportunity to improve their housing situation. Each family is planning to build a house large enough so that each family member will have an average of 22-23 m<sup>2</sup> of total area and 15-16 m<sup>2</sup> of living space.

Research has shown that many of those questioned (91.1 percent) want to build houses on the central kolkhoz and sovkhoz farms, where provision has been made for specific municipal utilities such as running water, heating and gasification. Providing these settlements with social and cultural institutions is making an improvement in rural living conditions. In fact, this latter circumstance was mentioned by rural inhabitants (34.1 percent) as the main reason effecting their choice of a house-building site. Some of those questioned considered that most important to them was living close to their place of work, an attractive landscape, the desire to live near a highway or rail line or next to relatives who are accustomed to the area. These reasons were also given both by those who associate their future place of residence with a large population, and by those who wish to live in small villages.

Many of the respondents adduce, as their basic argument, the selection of a site for building their house in a small village as having been their custom in their former place of residence (45.8 percent), and nearness to the worksite was the reason given by 16.8 percent. Most of this group were stock breeders. If we take into consideration that the majority of animal husbandry farms on the republic's kolkhozes and sovkhozes are not large-scale operations and are scattered around the villages (this being also characteristic of the Non-Black Earth Zone of the RSFSR), then it becomes understandable how vitally important for the normal functioning of this sector it is for these people to live near their place of work. In our view, this factor must certainly be taken into consideration when determining how a village is to be rebuilt, and when finding solutions to settling rural areas. We note, by the way, that over half the Belorussian rural population still lives in small villages, where over 60 percent of stock breeding is carried out.

Among the people who selected small villages as sites for future single-unit housing construction, very few were young people: out of 499 young people who intend to build their own homes, only 32 chose village life. Apparently, young people favor the new type of rural settlements, whereas representatives of the older generation (over 50 percent of the respondents) have no desire to abandon their customary residences and preferred small villages.

The growth of single-unit rural housing construction is determined, to a great extent, by material supply. Residential construction requires efficient organization of the entire house-building production line. Without this, it is impossible to count on a hastening of construction of residences paid for with personal savings.



In recent years the material and technical base of the republic's basic construction subdivisions, who work in the countryside, has been considerably consolidated. In order to supply the increasing volumes of single-unit and cooperative construction of farmstead-type housing, the republic's Belmezhekolkhozstroy [Belorussian Inter-Kolkhoz Construction] Association system has set up the appropriate production facilities. Operating house-building plants have been re-equipped to produce structures for farmstead-type houses. In every oblast of the republic, the interkolkhoz construction organizations have organized manufacture of one-story single-unit wood panel dwellings. Future plans call for a number of house-building plants to be put into operation.

The search for methods of reducing the cost of housing construction, especially that of farm houses, is a pressing problem. The estimated cost for plans for these houses is still high. The rural inhabitants themselves, naturally, want solid, warm, inexpensive houses. The republic's Belmezhekolkhozstroy Association has developed a plan for poured in situ cottage-type houses with utility buildings and utility service lines. These houses cost 12,000 rubles, and the mode of their construction allows the basic construction processes to be mechanized as much as possible. A 4-man construction workers' brigade can hand over a farmhouse on a turnkey basis after two months. These farmsteads have already been built on a number of the republic's agricultural facilities.

The development of type designs for farmstead-type structures which are suitable for rural living conditions is very important, since for rural inhabitants, the farmstead, where the farm buildings and other structures, along with the dwelling constitute a unified whole, have an excellent functional bond. The rural worker tends his personal subsidiary plot, and that is why the construction development should promote the production of agricultural produce at home, with minimal outlays of effort and money. This, in fact, is being done during leisure time with the participation of those members of the family who are unable to work.

A proper accounting of conditions such as the makeup and age structure of the family for whom the house is intended is necessary when developing plans for the construction of single-family houses.

Much can be done with regard to domestic engineering services, (and this also includes single-unit housing), and with regard to rural municipal services combines. They install gas ranges and water heaters, lay water lines, deliver fuel etc. These combines operate in only 253 of the republic's agricultural facilities. The vital interests of the rural population require that municipal service be set up in each and every kolkhoz and sovkhov.

It must be said that there are many difficulties associated with the work of the combines which provide municipal services to the population. These difficulties are caused, for the most part, by the combines' poor provision with material and technical supplies, and with qualified employees. These subdivisions are in dire need of sanitary technicians, fitter-troubleshooters for engineering networks, and gas equipment foremen.

Thus, the accelerating development of single-unit rural housing construction requires the integrated resolution of a number of problems of a technical-economic and organizational nature.

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CSO: 1821/114

## HOUSING CONSTRUCTION

### COMPLETION OF UNFINISHED RURAL HOUSING URGED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 1, Jan 85 p 39

[Unsigned article: "Following in the Tracks of a Journal's Publications"]

[Text] USSR Gosstroy, having examined the article by USSR Minister of Rural Construction V. D. Danilenko (see: EKONOMIKA SEL'SKOGO KHOZYAYSTVO, No 3, 1984), reported to this editorial board, that there are presently over 1,500 type designs for rural dwellings in effect at present, and some 800 of them are type designs for farm houses. Moreover, there are about 600 house designs which have been approved by the union republic state committees for construction affairs. These plans have been widely disseminated, but their use often leads to increased construction costs and overexpenditure of construction materials. This is the reason they need to be improved.

The union republics' state committees for construction affairs, and Gosgrazhdanstroy [State Committee on Civil Construction and Architecture] planning institutes and organizations are carrying out a thoroughgoing selection process of the entire mass of plans, and are eliminating plans from practice, which possess unsatisfactory architectural resolutions and technical and economic indicators. By the end of the first six months of this year, 10 obsolete series and over 450 type designs not meeting modern architectural, structural, technological and economic requirements, were eliminated. At present, estimated construction cost, according to type designs is being determined by prices which have been introduced since 1 January 1984. Gosgrazhdanstroy is making type design requirements more strict with regard to the observance of the norms for planning rural housing while improving their comfort, the conveniences for tending the personal subsidiary plots and the architectural and artistic qualities of the construction.

The problem of improving the type designs for dwellings and for the engineering utilities for rural construction has been examined at a special Gosgrazhdanstroy meeting, at which the need to expand the volumes of rural housing and civil construction, and to improve its quality, was determined. A resolution was adopted to draw up the missing plans in 1985 and in successive years, using efficient construction materials, and improved volumetric-layout and design resolutions.

The article raised the question of the experiment which has been carried out since 1982 in the Belorussian SSR, and which is supposed to improve the system

of economic interrelation of those taking part in capital construction, and the system of economic incentives to reduce material and labor outlays in construction.

The USSR Gosstroy board examined the problems connected with the conducting of this experiment. A check uncovered existing faults. Thus, the Approved Methodological Recommendations do not allow the development of "stable pricing" for commercial projects designed according to individual plans, and this has limited the framework of the experiment which was conducted. The methodological positions do not allow all types of economic incentive funds to be either set up or used.

USSR Gosstroy, in conjunction with BSSR Gosstroy, has sent all the methodological defects which have been detected, and the suggestions for ways to eliminate them, for examination by the USSR Gosplan Interdepartmental Commission. The USSR Gosplan working group has approved these suggestions, and it is hoped that a positive solution will be forthcoming.

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CSO: 1821/114



## HOUSING CONSTRUCTION

### KOMSOMOL VERY EFFECTIVE IN REGIONAL HOUSING CONSTRUCTION

Moscow SEL'SKOYE STROITEL'STVO in Russian No 1, Jan 85 pp 4-5

[Article by V. Semin, correspondent of SEL'SKOYE STROITEL'STVO: "The Plan Has Been Successfully Completed"]

[Text] The Porkhovsk interkolkhoz PMK [mobile mechanized column], headed by the chairman of its soviet, Magomet Magometovich Aushev, has been successfully building agricultural, production, public and housing buildings in Pskov Oblast for a quarter of a century now. More than one half of the mechanized column are komsomol members.

The past year, 1984, was intense for this collective. Having pledged "40 weeks of intense work by the 40th Anniversary of the Great Victory" and after the decree concerning working with young people was approved in the summer of 1984, the crew headed by V. G. Kondratena, like the entire komsomol detachment imeni the 60th Anniversary of the VLKSM [Komsomol], is engaged in construction work on a stepped-up schedule in the village of Zokosk to build single-apartment brick farm-type housing units. A similar type of housing unit is also being built by the mechanized column in the village of Volyshevo where a whole street was put into operation before the new year. Plant workers celebrated house warmings here.

The MPMK [interkolkhoz mobile mechanized column] is also managing to erect farm-type housing units made of monolithic reinforced concrete and a livestock complex made of brick reinforced concrete blocks. Three farms are already complete. The children of kolkhoz workers received a present before the start of the academic year--a new school that can accommodate 380 in the village of Pava.

Systematic instruction is being done. A new body of instructors was approved in 1984 composed of 30 people and the soviet of instructors was rejuvenated. It is headed by veteran worker superintendent and foreman V. S. Smirnov.

A main source for filling out the organization with young workers are the komsomol and youth detachments of the VLKSM Central Committee. In October 1979 the detachment imeni the 60th Anniversary of the VLKSM arrived here from Orenburg Oblast and Bashkir ASSR. The construction detachment fighters numbering 111 were placed in two 16-apartment housing units. Each apartment was furnished and equipped with dishes, a refrigerator and a television. They

became acquainted with construction skills in the crew study groups that were formed. During the period that the komsomol detachment was working 72 people studied construction specialties and 37 people obtained a second profession. Young people, demobilized by the Soviet Army, pour into the mechanized column collective. They are paid travelling expenses in the amount of 200 rubles with the condition of working in the MPMK for 2 years. The collective agreement also specifies payment of 50 rubles to students that come to work after completing the 10th grade.

After having a grade assigned to them the young construction workers are given work based on their specialty, the necessary tools and special clothes; instructors from among the qualified workers are assigned to them. An order is issued to reduce the output standards. For example, these standards were lowered for young workers by 40 percent in 1984 for the first three months after a profession is obtained. Young stone masons, carpenters, plasterers and painters as well as other specialties that work conscientiously have the opportunity of advancing in grade after 6 months of work. The wage for qualified young construction workers is quite high and amounts to between 160 and 200 rubles.

Komsomol members and young people take an active part in socialist competition and the social life of the collective. A young driver, N. A. Ivanov, achieved great success in competition last year and became the Lenin Komsomol laureate. Carpenter V. F. Grigor'yev was awarded the title "Best in the Profession." Plasterer and painter G. S. Fedorova, carpenter V. F. Grigor'yev, driver I. A. Ivanov, framer I. G. Klasso and bulldozer operator A. D. Bol'shakov became outstanding workers. Young construction worker V. K. Gazisova, arriving with the fighters of the construction detachment imeni the 60th Anniversary of the VLKSM, was selected as a deputy of the city soviet. The young people are periodically awarded monetary bonuses for the successes they achieved in socialist competition based on the results for the quarter, month or year.

The administration presents the young people with the opportunity of improving their general education level in colleges and technical schools. All those studying receive stipends from the MPMK.

The collective of the mechanized column patronizes general education school No. 1. A plan of measures has been drawn up to render assistance to the school in developing its material base and conducting professional orientation work. Work veterans and specialists in the MPMK speak to the graduates of the school with the aim of enlisting them to work at the construction site. In recent years the practice has come about of working with the parents of the graduates in this direction.

All young families of construction workers, upon registering their marriage receive the key to a comfortable apartment to where they move from their former place of residence--a comfortable young people's dormitory. There is a kindergarten, cafeteria, recreation rooms in the dormitories, and, on the grounds of the MPMK base, food, manufactured goods and furniture stores. Sports sections and an amateur artist club are in operation. Soccer, hockey and volleyball teams have been formed that take part in games for the

championship of the region. At the present time construction is being completed on two small sports arenas for tournaments and the sports arena of the school that is being patronized and a sports field near the young people's dormitory is being used.

There are service rooms in wagons at all projects under construction with a relaxation room, a stove for warming up and drying special clothes, a bathroom, closets for clothes and a basin and sink. For those who desire hot meals have been set up, 30 percent of the cost of which is borne by the mechanized column.

A komsmol detachment arrived at the MPMK from the Belorussian SSR in April 1984 consisting of 140 people. All of the members were placed in a comfortable dormitory and the members of families in individual apartments. The detachment fighters were grouped in crews by oblast for work. By an order of the MPMK groups were formed in the combine's educational center to master construction specialties. Instructors from among the masters and superintendents conducted the theoretical training while practical skills were obtained from the instructors who are highly qualified workers directly at the places of work.

The systematic, in-depth social and political work among the young people of the Porkhovsk MPMK and the relentless attempts to improve its professional level has not taken long to influence the overall indicators. The plan for 1984 was successfully completed.

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## HOUSING CONSTRUCTION

### REASONS FOR LOW QUALITY IN HOUSING CONSTRUCTION VIEWED

Kiev STROITEL'STVO I ARKHITEKTURA in Russian No 11, Nov 84 pp 1-2

[Article under the heading "Implementing the Resolutions of the 26 CPSU Congress": "One's Own House Is Always Built Well"]

[Text] "Radically improving the quality of housing and civil construction is a most important economic, management and social task as concerns meeting the interests of the broad strata of the populace" (from the CPSU Central Committee Decree "On the Letter from Construction Brigade Leaders to PRAVDA Published on 8 September 1984 Under the Heading 'A Word On the Honor of Construction Workers'")

The CPSU Central Committee has adopted a decree concerning the 8 September 1984 PRAVDA letter from construction brigade leaders, entitled "A Word On the Honor of Construction Workers." The decree notes that these brigade leaders from house-building enterprises, comrades Dyatlov from Vologda, Kvitko from Rostov-on-Don, Karibozov from Dzhabul, Maystrenko from Zaporozhye and Nalesnik from Krasnoyarsk, have taken the proper approach to questions of the necessity of fundamentally improving the quality of new housing and increasing the responsibility of all construction participants in this cause, fostering husbandry of the national wealth.

The article by construction workers in the press testifies to steady growth in the consciousness and political maturity of the working class, to a heightened sense of responsibility among workers for performing their civic and professional duty, of implacability towards mismanagement, of a striving to labor strenuously to actualize the resolutions of the 26th Party Congress, subsequent CPSU Central Committee Plenums, and the directives contained in speeches by Comrade K. U. Chernenko, CPSU Central Committee General Secretary and Chairman of the USSR Supreme Soviet Presidium.

The CPSU Central Committee shares the construction brigade leaders' concern that the new residences for Soviet people are, in many instances, clouded by careless finishing work and sanitary engineering work, by the large amount of unfinished work and incomplete provision of apartments with amenities. The construction of schools, children's institutions, trade and personal-services



enterprises often lags. The considerable funds and material-technical resources being directed by the state into solving the housing problem are not always used to proper effect in terms of improving the well-being of the Soviet people.

The decree emphasizes that fundamental improvement in the quality of housing and civil construction is a most important economic, managerial and social task as concerns meeting the interests of the broad strata of the populace.

The PRAVDA letter from construction brigade leaders and the CPSU Central Committee decree have been well-received among labor collectives at construction sites, at construction industry and building materials enterprises, in planning and scientific research organizations. In discussing these documents, branch workers have been unanimous in agreeing that high construction quality must become a matter of honor for each worker. A higher measure of responsibility is demanded not only of those on the construction site proper, but also, and equally importantly, of architects, engineers, planners, economists and administrative leaders of all ranks, in the sense of their being aware of this duty in carrying out the work entrusted to them.

Serious economic, organizational and ideological pressures are needed to improve construction quality. There must be greater demands on clients, and foremost on the local Soviets of People's Deputies.

The housing and civil construction program in our republic is truly enormous. During the first three years of the 11th Five-Year Plan, more than 54 million square meters of housing, general educational school seating for 438,000, and numerous kindergartens, hospitals and polyclinics were erected in the cities and villages of the Ukraine through all sources of financing.

But we could not boast about the construction quality. This past year, nearly a fourth of the housing built using state capital investments and worker funds was accepted by state commissions with a rating of "satisfactory." But we all know what a house given a "3" is like. It is an unfinished house with substandard work, one causing the national economy high losses. Today, expenditures on correcting defects and on doing work over are 2-4 percent of the estimated cost of construction.

The CPSU Central Committee has obligated the union and autonomous republic Councils of Ministers, the Gosgrazhdanstroy attached to the USSR Gosstroy and local soviet agencies to institute a strict procedure which will eliminate the release for occupancy of houses and cultural- and personal-services projects which have unfinished work, substandard work, defects or unfinished amenities, and to increase their demandingness of state acceptance commissions as concerns strict observance of the current legislation on these questions.

The role of author supervision and Gosarkhstroykontrol supervision of construction quality has increased in our republic recently, as has the exactingness of state commissions when accepting projects. This has to a considerable extent been facilitated by the USSR Council of Ministers decree on accepting finished construction projects for operation, which points out that the ispolkoms of the local Soviets of People's Deputies are obligated to bring disciplinary or other charges, in accordance with current legislation, against the leaders and members of state commissions when the rules for accepting finished projects for operation have been broken.

Still, the acceptance commissions and workers in the GASK [Gosarkhstroykontrol: State Architectural and Construction Monitoring] service do not always display the proper adherence to principles when accepting new projects, closing their eyes to defects in new houses. And local agencies of authority are reconciled to it. There is no other way to explain the flood of sharp, perplexed and ironic letters to the editors to newspapers and party organs from new residents complaining about poor-quality construction.

And there are other incidents as well. A Gosarkhstroykontrol service inspector in Gaysinskiy Rayon, Vinnitsa Oblast, refused to sign papers for a 75-apartment house built by PMK-48 of the Vinnitskselstroy Trust. And for good reason. Much of the work did not meet SNiP [construction norms and regulations] standards. The linoleum on the apartment floors bubbled up in waves. There was no central heating in the stairwells, as called for in the design. There were defects in the anti-corrosion insulation on the heat pipes. In spite of this, the state commission headed by the deputy chairman of the gorispolkom accepted the house, and gave it a good evaluation, and the city Soviet of People's Deputies approved the acceptance document.

Of course, one does not encounter such examples often. Still, this case is eloquent testimony to the fact that defects and unfinished work are sometimes tolerated by workers in the Soviets of People's Deputies themselves. Some ispolkom leaders make deals with their consciences and approve acceptance documents for unfinished housing so as to report [fulfillment of] the start-up plan, with no consideration at all of the interests of the new residents. This is the act of a scoundrel and damages us both economically and morally. Such phenomena must be combatted resolutely. USSR Stroybank representatives must stand watch over objectively evaluating buildings being put into operation, and foremost those of the housing and civil-construction type. They do not participate in the work of the state commissions accepting projects for operation, but they are obligated to check projects already accepted and to refuse to pay for construction output if defects and unfinished work are discovered.

One reason for the poor quality is that not all construction combines, trusts and DSK [house-building combines] erect housing evenly over the course of the year. This arrhythmia disrupts the flow and increases losses of working time. The CPSU Central Committee decree demands a smooth release of housing and other social- and personal-services projects over the course of the year and the curtailing, in every way possible, of storming.

The comprehensive, continuous planning of housing and civil construction is called upon to bring order to this work and ensure smoothness. This system has been in use in the Ukraine since 1975, and coordination centers heading and coordinating all work involving the comprehensive, flow-line development of its cities have been organized under the gorispolkoms in 67 oblast centers and cities with populations of over 100,000; unified general contractor and planning organizations have been designated. The construction of housing and cultural- and personal-services projects in the cities of Dnepropetrovsk, Sumi and several other oblasts which have introduced this system is being done basically in comprehensive flows. Designers have switched from the selective planning of individual projects to the development of documentation for microrayons.

However, in spite of the fact that "continuous-plan construction" has become widespread, by no means everyone has managed to achieve the even release of houses throughout the year. This applies to Khmel'nitskiy, Nikolayevka, Poltava, Zaporozhye, Rovno, Stakhanov and Pavlograd. These cities have still not created a two-year reserve of estimate-planning documentation and have not succeeded in preparing cities for further development. The gorispolkoms UKS's and contractor organizations have been deprived of the statutory possibility of developing two-year long-range schedules regulating the interrelationships of all participants in the construction process. Naturally, there can be no talk of a smooth construction flow under such conditions. The construction organizations of these cities begin the construction of many houses practically from scratch at the start of the year, although state norms anticipate an optimum stockpile of 28-32 percent of the annual construction-installation work volume. We are well-aware of where this ends. At the end of the year, there is storming and all-hands work, with no one thinking about construction quality, at housing and other city projects to be started up that year.

This testifies to the fact that certain city Soviets of People's Deputies, and foremost the gorispolkom first deputy chairmen responsible for construction, are approaching introduction of the continuous-planning system in a formal way. But it should be noted that the two-year planning mechanism cannot operate successfully just at the lowest level of the management system. In connection with the changeover to building up urban development complexes, the established deduction normatives -- 0.87 percent of the funds from total capital investments in housing construction -- are insufficient to cover current planning, much less long-range planning. In order to ensure the preparation of documentation for future use, we need to review the limits on this work with consideration of the new conditions.

The foundation for the creation of a continuous urban development flow is the concentration of capital investments in the hands of a single client. This facilitates the more responsive drawing up of contractor agreements and the prompt compilation and approval of titles lists; it puts financing and the formation of stocks of material-technical resources into proper order. Construction quality wins if all houses in a city are built by a single general contractor and designed by a single planner.

Unfortunately, a number of cities still tend to scatter construction funds among numerous developers. Departmental SMU's [construction-installation administrations] and maintenance-construction sectors are created at enterprises. In Ivano-Frankovsk, for example, nearly half the housing and cultural- and personal-services projects are put up by 19 small construction organizations. What they build takes a long time, is often substandard and, most importantly, is expensive. City leaders explain this tendency by the fact that the UKS's are not meeting their obligations to shareholders, which happens because construction workers do not cope with the plans. In order to break this vicious circle, we must create and strengthen the unified general contractor construction organizations and their production bases in the cities. This demands purposeful, joint efforts by the construction ministries and the local Soviets of People's Deputies.



The problem of improving construction quality is multifaceted. It encompasses questions of planning, increasing the level of factory finish on items, construction organization, improving material-technical supply, and others. The criteria of construction quality are also now being broadened. This concept now includes the soundness of houses, the completeness of housing developments, the comfort of apartments, the architectural expressiveness of new ensembles, and the level of industrialization of construction-installation work. Understandably, given these demands, success can be guaranteed only with the close cooperation of all participants in the construction process, cooperation aimed at overcoming interdepartmental barriers.

The new CPSU Central Committee decree outlines a broad, thoroughly substantiated program of measures whose implementation will permit the creation of a decisive turn towards providing workers with well-built, high-quality housing. The ministries and departments doing construction-installation work and the USSR Ministry of Building Materials Industry have been instructed to work out and implement specific measures to improve the quality of large-scale housing and civil construction, to provide it with the necessary high-quality components, materials and items, to improve labor organization and engineering preparations [installing utilities], to introduce the brigade contract.

The CPSU Central Committee has required the leaders of construction sites, construction industry and building materials enterprises, to create the conditions necessary to raise the occupational skill of workers, to strengthen in every way possible labor, technological and production discipline, to encourage high-quality execution, and to call to strict account those who permit work defects. It calls for unconditional observance of state standards, norms, specifications and plans, for meeting contract obligations concerning deliveries of components, materials and assembly sets to the construction site.

The USSR Gosplan, USSR State Committee for Labor and Social Questions, USSR Gosstroy, USSR Gosstnab, USSR Ministry of Building Materials Industry and Gosgrazhdanstroy attached to the USSR Gosstroy, with the participation of other ministries and departments concerned, have been instructed to examine questions of improving the planning of and material-technical supply to brigades, worker wages, stimulating high-quality construction, and to choose the criteria for evaluating it. The USSR Gosstroy and USSR Ministry of Justice have been instructed to prepare proposals on increasing the responsibility of officials for following standards, norms and regulations, as well as for following proper procedures in accepting projects for operation.

The CPSU Central Committee has demanded that all branch workers be roused to improve construction quality, that they persistently be encouraged to be aware in their work, take pride in their occupation, and be responsible for meeting plan assignments and socialist obligations with quality work. It obligates us to intensify organizational and mass-political work in all links of construction production, to widely propagandize the experience of leading collectives which have achieved reliability and durability in the projects they have put up.

We have examples of steadfast, systematic struggle for improved construction quality. All housing, social, cultural and personal-services buildings erected



this past year by construction workers in Rovno Oblast have been rated "good" or "outstanding." The Belotserkovsk DSK imeni 60th Anniversary of the USSR has achieved a major success, having received the above ratings on its housing for the eighth straight year, with all houses being released with guarantee certificates and no unfinished work. These achievements are a result of well-organized creative cooperation under the slogan "High Quality, From Design to Building," of the introduction of the integral-process brigade contract and comprehensive construction quality control system based on scientific production organization. At the Belotserkovsk DSK, each worker, line worker or chief, is a true craftsman who does not permit poor work, either by himself or by his comrade or by a supplier. At this DSK, moral and material incentives are subordinated to ensuring high construction quality.

All branch workers must be similarly demanding of their labor. Comrade K. U. Chernenko said, at a meeting with workers at the Serp i Molot Plant in Moscow, "Would one do a poor job of building apartments for workers, teachers, physicians, for oneself, for one's children?" This same thought was also expressed in the PRAVDA letter from construction brigade leaders. It says, "We are building for ourselves, since we are building for our people, who are the sole owners of the country. And one always builds his own house well. And for that reason, in perfecting the technical, economic and organizational aspect of housing construction, we must, as true owners, first of all seek out reserves within our own field. This is true whether one is an architect, an engineer, a manager or a worker."

True, one always builds his own house well! The PRAVDA letter from construction brigade leaders and the CPSU Central Committee decree adopted in connection with it are mobilizing collectives of builders, architects, construction industry and building materials industry enterprises to improve construction quality. We can and must build our houses well and to last.

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## CONSTRUCTION MACHINERY AND EQUIPMENT

### NEW DEVELOPMENTS IN CONSTRUCTION MACHINERY

#### Improved Earthmoving Machines

Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 85 p 2

[Article: "New Equipment for Construction Projects", under the rubric "Technical-Economic Review"]

[Text] Since the beginning of the 11th Five-Year Plan period, the technical level and quality of the construction, road and municipal machinery-building industry's output has greatly improved. There have been 518 new types of machines and equipment produced in set series, 437 machines and pieces of equipment have been modernized, and about 400 type sizes of products with obsolete designs have been taken out of production.

There has been a considerable reduction in the share of equipment which has been in production for 10 or more years. In 1981, these machines and equipment accounted for 28.8 percent of that produced, but by the end of 1984, this had dropped to a total of 16.5 percent.

The share held by highest quality products for that period of the five-year plan which has passed so far comes to 35.8 percent. During this time, over a thousand inventions and 80,000 rationalization proposals, the total economic effect of the use of which has exceeded 300 million rubles, were introduced.

This results in the improvement of all the basic characteristics of the equipment.

Thus, the use of a hydraulic drive in payloaders increased the capacity of the buckets by 25-60 percent while simultaneously reducing the machine's weight 35-40 percent on the average. If the weight of an excavator with a 2.5-cubic meter capacity bucket and mechanical drive comes to 90-plus tons, then the weight of an excavator with interchangeable 2.5- and 3.2-cubic meter capacity buckets comes to 56.2 tons in all. The overall saving in metal realized in the introduction of hydraulic excavators came to 200,000 tons, due to this reduction in weight. Moreover, the use of equipment which has been converted to hydraulic operation will, in the estimation of the specialists, reduce the production cost of the construction work done with this equipment by approximately 20 percent. At the present time, the proportion of hydraulic machines

in the fleet of single-bucket payloaders has exceeded 80 percent, with the figure for bulldozers at 99 percent.

The problem of conversion to hydraulic drive requires a sharp increase in the production of hydraulic drive elements--pumps, motors, filters, distributors and cylinders, which, until recently were manufactured in uncoordinated fashion in dozens of the sector's plants. As a result, no provision was made for interchangeability in the various assemblies and parts, even though they had identical technological parameters. In order to standardize hydraulic equipment and to expand its use in the machines manufactured by the sector, a VPO [All-Union Industrial Association] was organized in Minstroydormash [Ministry of Construction, Road and Municipal Machine Building] (within the overall work force of the administrative apparatus), for the purpose of producing hydraulic equipment for construction and road equipment. This association bears the name Soyuzstroygidromash [All-Union Industrial Association of Hydraulic Construction Machinery]. While the sector as a whole increased its volume of marketable products by 11.7 percent during four years of the five-year plan period, then the production of hydraulic equipment increased 1.7-fold for the same period.

The automation of road-building machinery and equipment has become the dominant direction in their development.

More than 60 percent of all self-propelled graders, and a major portion of the scrapers and many other machines have been equipped with automatic control systems. Automation reduces the number of engagements and disengagements made by a machine operator on manually-controlled units 10--20-fold. The fine sensitivity and quick response of automatic control systems make it possible to work critical projects to required specifications, and to substantially reduce, and frequently to completely eliminate the manual finishing operations associated with heavy physical labor.

Important, too, is the fact that the use of automated equipment, when compared to operating the same piece of equipment manually, brings about a 2--3-fold increase in productivity in the execution of the most labor-intensive forms of work, while at the same time producing the required quality. Expenditure of construction materials is reduced, the number of machines needed to perform the assignments is reduced, and the specific consumption of fuel and lubricants is reduced. The service life of the machines and their interservicing periods are increased by observing the most favorable operating schedules.

The use of laser equipment to control scrapers and bulldozers when constructing rice check plots, and when laying out cotton fields has proven especially effective, as it has for guiding drain tube layers, ditching excavators, and other machines used in canal construction.

During the 11th Five-Year Plan, a transition was begun, from the manufacture of mechanization equipment used for individual types of work, to the development of systems of machines used in a whole gamut of processes.

At the present time there are systems of machines in operation which are used in the integrated mechanization of construction, repair and maintenance of highways and in reclamation work.

The greatest number of machines, equipment and instruments--over 500--make up the "System of Machines for the Integrated Mechanization of Construction". It was formed on the basis of an analysis of factors such as improvements in the volumetric layout and design resolutions of buildings and structures, special regional construction features, and changes in the physical volume and structure of construction and installation operations. The system anticipates the introduction of progressive production processes into construction and they are based on industrial methods, as well as the utilization of modern, highly-productive machines.

The enterprises and institutes of the construction, road and municipal machine-building industry have developed an entire series of new, highly-productive forms of equipment. Thus, a collective of the Odessa Heavy-Duty Crane-Building Production Association imeni January Uprising has developed self-propelled boom cranes which have load-carrying capacities of 25 and 40 tons, and are mounted on a short-wheelbase chassis. They are equipped with a hydraulic drive and a telescoping boom, and are designed to mechanize construction and installation operations in industrial and civil construction, and for on- and off-loading work. The shortened basal section with its total four-wheel drive gives the crane a high degree of all-terrain capability and maneuverability on unprepared construction sites and in the constricted conditions found during the reconstruction of enterprises.

At the Oktyabrskaya Kuznitsa Road Machinery Plant, they are putting the final touches on the DE-232 machine, which is used to repair asphalt concrete road pavements, and uses infra-red radiation energy. The machine moves at a speed of up to three meters per minute and treats a surface of up to 3.75 meters in width and down to a depth of five centimeters. In this connection, maximum utilization is made of the old materials from the repaired surface. All work is done with a minimum of interruption of motor transport traffic.

The efforts being carried out by the All-Union Scientific Research Institute of Construction and Installation Tools, and by enterprises of the Soyuzstroy-instrument [All-Union Construction Tools] Industrial Association are of vital importance in reducing unproductive, physically demanding manual labor expenditure. They are working on the creation and development of a versatile electric multi-purpose drill, which uses four interchangeable tools: a hand-held drill, a hammer, a screwdriver and an ordinary electric punch. The world's first vibration-proof electric hand tools have won widespread recognition. These tools include intermittent-stroke electric and pneumatic impact wrenches, combined vibration-proofed pneumatic chopping and riveting hammers, electromagnetic hammers and punches with vibration protection and double insulation. The technical level of these tools surpasses the best foreign models, and their designs are under the protection of numerous foreign patents, and several licences for them have been sold. The development and start-up of large-scale production of vibration-proofed hand-held machines has been awarded the USSR State Prize and the GDR National Prize.



To bring about the integrated mechanization of construction and to carry out reclamation work, Minstroydormash enterprises need to produce over 800 models of machines, equipment and tools.

In point of fact, there are only 560 items in series production, which comes to 70 percent. Of the most labor-intensive for the sector to produce, and the most critically needed in the construction trades, i.e., the self-propelled machines on special chassis such as cranes, loaders, excavator-manipulators and self-propelled graders, there are only 37 standard sizes being produced at a demand of about 100.

Serious difficulties are being created in a number of the national economy's sectors because of the unsound design of the machines and equipment being produced by Minstroydormash. The construction people are in dire need of 300-750 horsepower bulldozers, scrapers with bucket capacities of 40 and more cubic meters and cranes which can lift up to 800 tons. At the same time, for example, of the bulldozers which were manufactured by Minstroydormash enterprises last year, over 60 percent had only 75 horsepower engines, and only 1.5 percent had 300 horsepower. Over 75 percent of the scrapers were manufactured with bucket capacities of from three to 4.5 cubic meters, and over 70 percent of the boom cranes were capable of hoisting only up to 10 tons.

Up to now, Minstroydormash has failed to take up production of an entire line of replacement equipment for the production machines. Only 2-5 types of tractor-mountable equipment is delivered with the excavators, against the 15-20 which are needed.

Efforts to develop machines and equipment such as concrete pump trucks, ready-mix concrete delivery trucks, and plastering and painting stations started off well behind schedule. Mini-loaders and mini-excavators are still not being manufactured. The equipping of caterpillar tractors with track is proceeding slowly.

In the estimation of USSR Gosstroy, 12-15 percent of the total volume of production should be given over to the manufacture of machines and equipment to be used in the North. However, in 1984 the portion of the output consisting of single-bucket payloaders amounted to only 1.2 percent, with a figure of 1.5 percent for truck-mounted cranes, and 4.2 percent for bulldozers. Some of these machines are stocked with individual set-completing items which are being used in day-to-day operation. The result of this is that their service life prior to major overhaul is reduced almost 2-fold, and the output, for example, of the earth-moving machines is only 70-80 percent, compared to the machines operating in the central regions.

Within the sector, a study of the assignments for the 12th Five-Year Plan is being completed. It is anticipated that the efforts of the specialists will be concentrated on continuing to improve the designs of all equipment which is manufactured.

The increase in the volume of earth-moving work which is to be done by 1990 dictates the need, at an overall increase of 14 percent in scraper production, to alter the structure of the output of these machines, having made provision for an increase of up to 50 percent for the share of self-propelled machines, mostly scrapers with bucket capacities of 15-25 cubic meters. At the same time, production of pull-type scrapers with 4.5-cubic meter buckets is to be sharply cut back.

One of the most promising lines of research in the 12th Five-Year Plan will be the development and series production of robotics. Thus, VNIISTROYDORMASH [All-Union Scientific Research Institute of Construction, Road and Municipal Machine Building] has already initiated development of a construction robot to be used in plastering, painting and other operations. An entire group of varied manipulators is being devised. In particular, in the Leningrad Scientific Robot Construction Production Association, there are plans to start up production of a multi-purpose construction manipulator mounted on a single-bucket hydraulic payload. This machine, equipped with the appropriate tools, can be used when on- and off-loading structural elements of buildings from transport trucks, or from storage sites, when laying water-supply and sewer pipelines, water flumes and foundation blocks, when disassembling structures, for soil compaction work, and for backfilling trenches.

During the 12th Five-Year Plan period, the product line of operating equipment for the basic models and their modified versions are to be expanded considerably, according to the industry's needs. This will be undertaken with due regard for their being used in varying conditions, including conditions in the country's northern regions. The transition to the modular unit principle of machinery design, which, while standardizing the equipment to a great extent, will create the necessary conditions for in-depth specialization by the enterprises, will be continued. The problems of improving the operational characteristics of the equipment being manufactured, reducing the amount of power, as well as metal used in its manufacture, improving its reliability and extending its service life will loom large in the work being done by Minstroydormash.

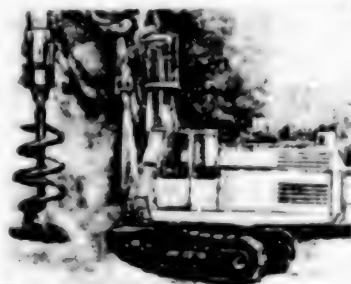
#### Machines in Series Production

Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 85 p 2

[Article: "Series Production Has Begun"]

[Text]

POLE-HOLE DIGGER



The BM-2001 pole-hole digger is designed to dig holes in permafrost, to depths of up to 20 meters, and up to a meter in diameter.

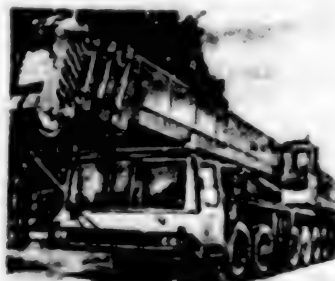
This machine was developed by the Voronezh Special Industrial Design Bureau for Earth-Moving Machinery. The pilot series is set at 10 units, to be manufactured by the Voronezh Production Association for Excavator Manufacture imeni Comintern. This year, 20 of these units are to be produced.

#### SELF-PROPELLED SCRAPER



The self-propelled double-engined DZ-115 scraper has a bucket capacity of 15 cubic meters and is mounted on a BelAZ-531B tractor (total output of the power plants is 2X265 kW). Constructed by VNIIsroydormash. Series production has been taken up by the Balakovo Self-Propelled Earth-Moving Machinery Plant. Production of these machines has been set at 25 units for 1985.

#### HOISTING CRANE



The KS-8471 hydraulic boom crane, with its telescoping boom and a hoisting capacity of 100 tons is mounted on a special truck-type chassis. It was developed by the leading Special Industrial Design Bureau for Heavy Crane Design, in Odessa. Series production is to be developed by the Odessa Production Association for Heavy Crane Construction imeni January Uprising through affiliated deliveries of assemblies and units in compliance with an agreement concluded between the USSR and the Polish People's Republic.

## HEAVY-DUTY LOADER



The single-bucket, pneumatic-tired TO-21 front loader has a load-carrying capacity of 15 tons, and was developed in Moscow's All-Union Scientific Research Institute of Construction, Road and Municipal Machine Building. Series production is being set up at the Berdyansk Road-Building Machinery Plant. Use of this machine in earth-moving operations eliminates the need to load the earth with an excavator and haul it with a dump truck.

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## CONSTRUCTION METHODS AND MATERIALS

### BRIEFS

**NEW CONCRETE ADMIXTURE**--A new technological line is in operation at the Kapchagay Rural Construction Combine. With the aid of its chemical components are added into a mixture that improve the properties of concrete and aid in reducing the consumption of cement by 10 percent per year. The director of the Kapchagay SSK [Rural Construction Combine], I. Triseyev, comments: "We build production projects for agricultural purposes. The reinforced concrete products must be distinguished by a high resistance to aggressive agents. Plasticizers are added in the concrete for this. The technology was worked out by TsNIIEP [Central Scientific Research Institute for Experimental Design] for Rural Construction and implemented at our combine for the first time in the republic. The production of concrete products at the Kapchagay SSK has its own features. Plastic concrete mixtures are basically manufactured here by technology that is similar to smelting and metal inserts are used. By taking this into consideration scientists proposed that a complex chemical additive made from sulfate-yeast waste products and an agent that speeds up hardening--sodium sulfate--be used. The essence of the technology is this--the waste products and sodium sulfate are put together in corresponding vessels where a measured amount of water is added and mixed together until the components are completely dissolved. The mortar that is obtained goes into vats where the complex chemical additive is prepared. There should be five percent sodium sulfate and one percent sulfate and yeast waste products in it. The mixture at a working concentration then goes into a delivery vessel from where it goes to concrete mixers through a batch-measuring device. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 9 Jan 85 p 4] 9495

**SUPERPLASTICIZERS FOR PRODUCING CONCRETE**--New technology to prepare concrete mixtures with the aid of superplasticizers, the production of which will be started at the Rubezhnoye "Krasitel'" Association, will make it possible to substantially improve its quality and reduce its cost. A special complex with a capacity of 30,000 tons of superplasticizers per year is being built here for this purpose based on a design worked out by the local branch of the VNII [All-Union Scientific Research Institute] for Organic Semi-Finished Materials and Dyes. Its use in construction production will provide an annual economic return of about 40 million rubles. [By V. Mikhaylichenko in Rubezhnoye, Voroshilovgrad Oblast] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 30 Aug 84 p 3] 9495

**CONCRETE PACKAGING**--Local innovators at the "Punane Kunda" Cement Plant have installed an automated line to package products that are turned out. This

line "wraps" up to one thousand tons of cement in special polyethylene packages in a 24-hour period. Now the cement can be transported on railroad flat cars without any covering attached, stored in the open, and does not need to be shielded from the rain or snow at construction sites. The losses are zero! [By V. Proskura, correspondent of SOTSIALISTICHESKAYA INDUSTRIYA in the Estonian SSR] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 12 Oct 84 p 2] 9495

X-RAY USED FOR PIPE LEAKS--"Sirena" x-ray devices were sent to construction workers on the main gas pipeline from the access routes of the "Burevestnik" Association. They are intended for checking the quality of the welds. The first batch of this product will be flow on the Urengoy-Tsentra route. The portable device is moved inside the gas pipeline being built by electronic command and stops at each joint. Subjecting it to the x-ray makes it possible to instantaneously uncover hidden defects. The check is faster than usual by a factor of 10. The development and output of the innovation is a result of the activities of subdivisions that were organized in the "Burevestnik" Scientific Production Association where the parallel implementation of scientific, structural and production assignments is practiced. This has made it possible to cut the "development and adoption" cycle in half. [TASS] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 9 Jan 85 p 2] 9495

NEW AUTOMATED FURNACE--You can only see them in operation in a plant museum's photographs now--the old furnaces have served out their time having operated for a half century at the Machine Tool Association imeni Ya. M. Sverdlova. The dismantling of these furnaces, which have already been copied, was completed here yesterday--the entire process of smelting cast iron is now accomplished by a new automated complex. "Reconstruction of the firm's metallurgical production not only provides for the mechanization of hard processes, reduces labor expenditures and improves the quality of smelting operations but, what is no less important, makes it possible to completely eliminate dust and soot discharges into the atmosphere," says Yu. Stepanov, chief metallurgist at the association. The new facilities are equipped with recovery units and gas-cleaning devices. The particles that formerly flew into the smokestack are now caught and burnt as a low-quality fuel. The heat that is obtained in this manner is used to warm the air that is forced into the furnaces. The start up of the complex also has great social importance. The profession of furnace feeder, for example, has been eliminated--an operator controls the automated furnace from a general control panel. [By L. Frolov] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 1 Feb 85 p 1] 9495

AUTOMATED COMPUTER SYSTEM--An automated control system has begun operation at the Minsk Industrial Housing Construction Association. The EVM [computer] determines the rate of deliveries of materials and components to the sites and draws up schedules for assembling and doing the finish work in housing units. The computer not only fixes the lag time in any section but also suggests the optimum variation for eliminating the consequences of the delay. Specialists from GDR, VNR [The Hungarian People's Republic] and the USSR took part in developing the ASU [automated control system]. [TASS] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 1 Feb 85 p 2] 9495

**NEW ENGINE REPAIR PLANT**--The first phase of a plant to repair engines that are built at the Kamsk Association for Producing Large Trucks was put into operation. Its capacity is 20,000 renovated diesel engines per year. Highly productive equipment has been installed in the spacious building that makes it possible to repair engines without using manual labor. In measured minutes the automated machines disassemble the motor that arrives into parts which go on continuous lines to be washed and cleaned. Worn-out assemblies are restored through fusing, spraying and welding and then are guided onto an assembly conveyor. With the plant operating at full capacity at the beginning of the 12th Five-Year Plan 100,000 "KamAZov" [Kamsk Motor Vehicle Plant] motors and the same number of motor-vehicle suspensions will be renovated, and 50,000 boxes will be made into transmissions here every year. [By N. Sorokin, TASS correspondent] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 8 Feb 85 p 2] 9495

**CONCRETE SHOP MADE QUIET**--Unaccustomed quiet replaced the din of the vibration apparatus in one of the shops of the Latvian Reinforced Concrete Components Plant No. 1. The reequipped technological line began to operate there and the vibration, which beneficially affects the formation process of the structure of porous concrete, did not disappear at all but was only made noiseless. The new technology for producing porous concrete was worked out by a group of scientists under the direction of Assistant Professor E. Kurnosov in the Construction Production Department at the Riga Polytechnical Institute. As a result of using the innovation, porous concrete units and panels have become more uniform in their strength and consistency. The consumption of energy of the equipment was reduced by a factor of 15. [By S. Shpungin in Riga] [Text] [Moscow NEDEL'YA in Russian No 5, 1985 p 4] 9495

**TRENCH DEPTH MEASURING DEVICE**--Complete means for automating control over the depth of trenches were worked out at the Design and Special Installation of Petroleum and Gas Projects SPKB [Special Planning Design Bureau]. They consist of the following principal parts located on a rotor trench excavator: depth monitor, line monitor, unit for generating and processing signals, indication and signalling unit, recording unit. This makes it possible to replace manual, selective, subjective control over the depth of the trench with automatic, continuous, objective control, makes it possible to determine the output of the rotor excavator with a high-degree of accuracy, and also improves the safety of the work by controlling the parameters of the open trench. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 23 Feb 85 p 2] 9495

**LASER INSTRUMENT FOR PIPE PLACEMENT**--The Lithuanian Organization and Technology for Rural Construction Trust has developed an "ILKUT" laser instrument for ensuring the accuracy of the direction and slope of pipelines. The laser beam makes it possible to form an "optical string" in space that can be directed along the center and over the upper portion of the pipe. The precise location of the laser beam is guaranteed without any deviations irrespective of the conditions. The developers of this device maintain that the use of "ILKUT," a light compact device, makes it possible to lay more pipes in a day than with any other method of control. The address for information and inquiries is: 233000, Lithuanian SSR, Kaunas, Donelaytisa Street, 52, Lithuanian Organization and Technology for Rural Construction. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 23 Feb 85 p 2] 9495

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